

# Simplifying scrubber systems

## Forbes Technologies benefits from Bluetooth and new flowmeter design

# FORBES

PLASTICS TANKS AND ENVIRONMENTAL TECHNOLOGIES

The Forbes Group, with origins dating back to the late 1950s, designs and manufactures tanks, vessels, scrubbers, degassers and other chemical plant in thermoplastics and glass fibre reinforced materials. With a sales and design office in Norfolk, UK, the company has five purpose-built manufacturing sites in the Scottish borders, four of which are dedicated to plastics manufacture and the fifth used solely for fabrication of metal accessories. Extensive in-house capabilities include mechanical engineering design and chemical process design.

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Ben Whicker

Chemical & Process Engineering Manager  
Forbes Technologies



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Forbes supplies scrubbers, storage tanks and other vessels

**The challenge** Forbes Technologies relies on instrumentation from Endress+Hauser for its scrubber systems, which are air pollution control devices that can be used to remove particulates or gases from industrial exhaust streams. The company supplies scrubbers, storage tanks and other vessels into a variety of industries including water, chemical, life sciences and food & beverage. The scrubbing towers utilise level switches, radar devices for continuous level measurement, pressure transmitters, pH sensors and flowmeters, all supplied by Endress+Hauser, to ensure optimal performance, regulatory compliance and efficient removal of harmful emissions from industrial processes.

**The solution** Of particular benefit to Forbes is the Promag W 0 x DN option, the world's first electromagnetic flowmeter without measuring tube restriction. In the past, to prevent inaccurate measurement downstream of pipe bends, inserted devices or control valves, it was necessary to have an inlet run of at least five times the

pipe diameter for most electromagnetic flowmeters. But that is not always possible in close-knit pipelines. The 0 x DN full bore option for Promag W removes this restriction, making it ideal for compact systems or skids. Multiple measuring electrodes detect the flow, generating a substantially higher density of measured data than for standard devices to achieve high accuracy regardless of any obstruction.

Another feature of the Endress+Hauser portfolio is Bluetooth to support safer maintenance and commissioning. As Forbes' Chemical & Process Engineering Manager Ben Whicker explains, “Our chemical storage tanks can be up to 15 metres tall, so if you can access the instrumentation from the ground instead of having to reach the displays it makes life so much easier.” Bluetooth can also be used to generate readings for testing of control sequences. “We can simulate processes like filling and emptying from our phones,” Ben confirms. “When we had to manually fill the

tank up with water if would take a couple of hours, whereas now it can literally be a couple of minutes.”

**The benefits** The 0 x DN flowmeter reduces the footprint of skid-mounted scrubber systems, saving material which is beneficial for cost and sustainability. It also aids installation of skid-mounted scrubber systems because the flowmeters don't have to be electronically disconnected prior to delivery and rewired on the customer's site. “To transport the system we have to split the pipework a couple of metres off the ground,” explains Ben. “Whereas before the instruments had to go on the vertical leg near the top of the tower, now they can be mounted at working level. So it means we can test the whole system and know it's wired correctly when it leaves the factory.” There's also a safety benefit as the flowmeters are accessible without working at height.

Via a secure connection, Bluetooth offers safer testing and commissioning for instruments that may be mounted in inaccessible locations. As well as faster configuration than push buttons or touchscreens on instruments, it allows for simple saving and recording of instrument configurations for future reference. The echo curves on level instruments can be easily recorded and shared remotely by Forbes or the end users, which allows for remote troubleshooting support from Endress+Hauser.

“The technical support is very good, which is one of the key things for me,” says Ben Whicker. “And I like the quotation process because I can go online and configure all the instruments that I want for a certain job within minutes.”



Skid-mounted scrubbing system

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